Trend Study 2-4-01

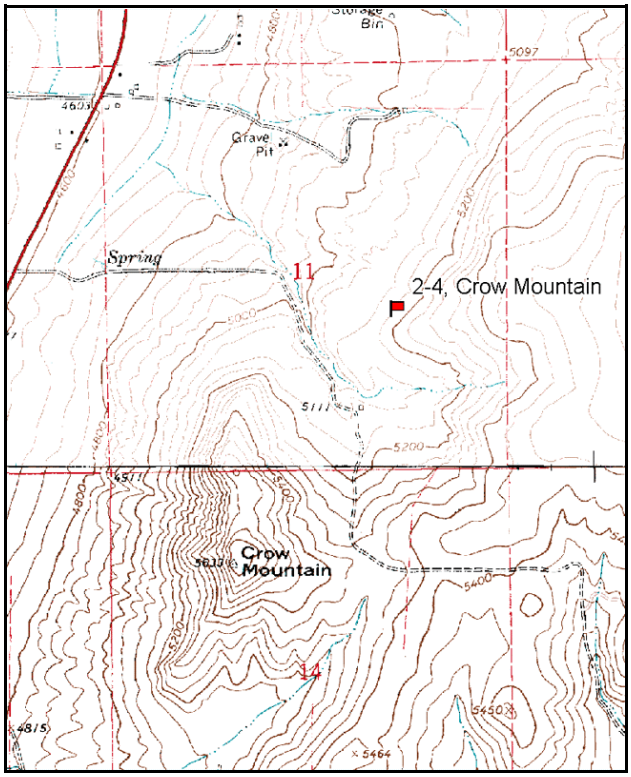
Study site name: Crow Mountain . Vegetation type: Bitterbrush .

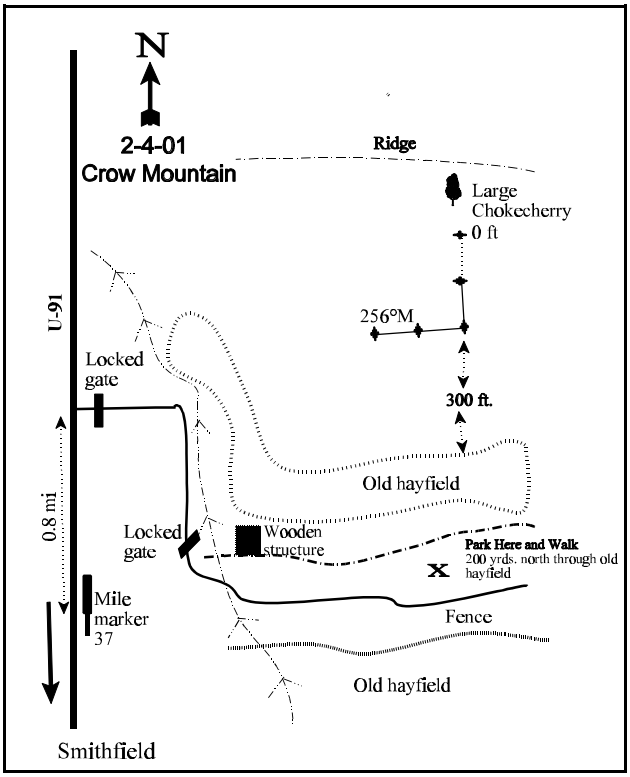
Compass bearing: frequency baseline 160 degrees magnetic.

Frequency belt placement: line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

LOCATION DESCRIPTION

Proceed north on U-91 through Smithfield to mile marker 37. Travel 0.8 miles north of the mile marker and turn east (right). At the fork, veer left (right fork goes to residence) and proceed through the gate. From the gate travel 0.4 miles passing through two gates. Stop at the third gate noting an old wooden structure on the left. From the gate walk approximately 275 paces at a bearing of 13 degrees true to the 0-foot stake of the baseline. The baseline runs at a bearing of 160 degrees magnetic. The 0-foot stake is marked by browse tag #7927. The baseline doglegs after 200 feet and runs in a direction of 256 degrees magnetic. You will need to call the land owner in Richmond to get the key for the locked gates.





Map Name: Richmond

Diagrammatic Sketch

Township 13N , Range 1E , Section 11

UTM 4636583 N, 433501 E

DISCUSSION

Trend Study No. 2-4

The Crow Mountain study, one of several that samples critical winter range along the Cache County "face", is located between Smithfield and Richmond. Like much of the critical winter range north of Smithfield, the study area is surrounded by cultivated hay-meadows and pastures. The site is within a dispersed stand of bitterbrush on a 35% south slope at approximately 5,140 feet in elevation. Utilization of the browse was observed as heavy in 1984, after the heavy winters of 1982-84. Utilization was light in 1996, with only a few deer and elk pellet groups found on the site. The area has been grazed by cattle in the past, but no grazing occurred between 1991-1996. A pellet group transect read on the site in 2001 estimated only 2 deer days use/acre and 1 cow day use/acre (5ddu/ha and 3 cdu/ha). Deer pellet groups appear to be primarily from late spring and early summer. These may be from resident deer which feed in nearby fields.

Soil is classified as “Leathan Silt Loam”, a classification that has only moderate water permeability and a high erosion potential. Leathan soil is quite deep with an A horizon up to 12" in depth, depending upon erosion. Chemically, the soil is strongly calcareous but only mildly alkaline in reaction (Erickson and Mortensen, 1974). Soils at the study site are deep with an effective rooting depth (see methods) estimated at 20 inches in 1996. Texture is a clay loam with a moderately alkaline pH (7.8). Organic matter is relatively high at 4.5%, but phosphorus could be a limiting factor at only 7 ppm. Values less than 10 ppm may be limiting to plant growth and development. Vegetative and litter cover from herbaceous plants provide adequate soil protection to prevent most erosion. The erosion condition class was determined to be slight in 2001.

Because of an almost complete loss of mountain big sagebrush, browse composition and overall density has been seriously depleted. Current composition consists of a sparse stand of mostly older age class antelope bitterbrush and a number of smaller increaser shrubs including broom snakeweed, woods rose, and stickyleaf low rabbitbrush. Big sagebrush is nearly absent within the immediate area except on or near drainage channels. Antelope bitterbrush was heavily browsed in 1984, but protected somewhat by a semi-erect, layering growth form. Use was light to moderate in 1990 and 1996. Vigor was generally good. However, relatively little sexual reproduction was apparent. The major decline in population density in 1996 is more a reflection of the greatly increased sample size used in 1996 and not a major drop in density. Evidence of this is found in the relatively small number of dead plants sampled (140 plants/acre). During the 2001 reading, utilization was moderate to heavy. Poor vigor increased slightly and percent decadence rose from 12% in 1996 to 39% in 2001. The number of dead plants also rose slightly. Bitterbrush on the site displayed relatively long annual leader growth in 2001, averaging 4.5 inches. It appears that bitterbrush has received consistent heavy use for the past few years. The only other shrubs providing significant forage are a few large scattered serviceberry. These show heavy use where available, but most are growing out of reach.

The principal forage component is a vigorous stand of perennial grasses and forbs. The perennial grass composition has been dominated by Kentucky bluegrass with smaller amounts of bluebunch wheatgrass in 1984. Bluebunch wheatgrass is currently the most abundant perennial grass. However, annual brome grasses dominate the site by providing 81% of the grass cover in 1996 and 73% in 2001. Annual grasses and forbs were not included in the 1984 and 1990 surveys, so no comparisons can be made. Photo point comparisons suggest that these annual grasses were also numerous in 1990.

Forbs are very diverse and abundant, containing several useful species that include the following: yellow salsify, arrowleaf balsamroot, western yarrow, blue flax, and low penstemon. Unfortunately, weedy forbs are also abundant and contain some invasive species. Curly cup gumweed, thistle, and dyers woad are abundant. The abundant understory cover of annual grasses and weedy forbs provides significant competition to shrub establishment.

1984 APPARENT TREND ASSESSMENT

Soil is protected by an adequate vegetative cover of grass and forbs. Trend appears stable. However, the same factors that produce a stable soil trend also appear to be inhibiting reproduction of the more desirable shrub species. From a big game winter forage point of view, condition is declining because of a lack of browse and the fact that only the undesirable shrubs appear to be increasing.

1990 TREND ASSESSMENT

Bitterbrush is the key browse species on this privately-owned winter range. There is limited browse in this agricultural area. The large old plants have been heavily utilized in the past, but currently support light to moderate hedging. Density plots appeared to show the bitterbrush population increasing by 15%, while percent decadency also increased from 21% to 29%. On this slope, there is heavy competition from an understory of a sod-forming grass, rhizomatous forbs, and numerous annuals. There are 27 forbs with 17 of them increasing in nested and quadrat frequency values. Three of the 4 grasses also have increasing nested and quadrat frequency values. It should be noted that the competitive sod-forming Kentucky bluegrass has greatly decreased in nested and quadrat frequency values, while the more desired bluebunch wheatgrass has increased.

TREND ASSESSMENT
soil - stable (3)
browse - stable (3)
herbaceous understory - improving (4)

1996 TREND ASSESSMENT

The soil trend is up slightly due to an increase in litter cover and a decline in bare ground from 36% to 8%. Abundant vegetation and litter cover adequately protect the soil from erosion. Trend for the key browse species, antelope bitterbrush, is up slightly. Estimated density declined since 1990 from 2,266 plants/acre to 860. However, due to the lack of significant numbers of dead plants, this decline is mostly due to the much larger sample size utilized. The new sample better estimates shrub densities which often have aggregated and/or discontinuous populations which characterizes this bitterbrush population. Utilization is currently light to moderate with no heavy use reported. Percent decadency declined from 29% to 12%, with most plants displaying good vigor. Broom snakeweed also showed an increase in population, apparently a result of the increased sample. Snakeweed and wood's rose appear to have stable populations with their current age distributions. The herbaceous understory is abundant, but dominated by annual brome grasses which combine to cover nearly one-third of the ground surface. Kentucky bluegrass has continued to decline significantly leaving bluebunch wheatgrass as the only abundant perennial grass. Sum of nested frequency for perennial grasses declined by 57%. Forbs are abundant and contain some important species. However, nearly all perennial forb species sampled in 1990 declined in nested frequency by 1996. The only species that increased include curly cup gumweed, dyers woad, pacific aster, tapertip hawksbeard, prickly lettuce, and low penstemon. Gumweed and dyers woad are abundant and account for 25% of the forb cover. Overall, sum of nested frequency for forbs declined by 30%. This, combined with the decline in sum of nested frequency for perennial grasses, indicates a downward trend for the herbaceous understory.

TREND ASSESSMENT
soil - up slightly (4)
browse - up slightly (4)
herbaceous understory - down, dominated by weedy species (1)

2001 TREND ASSESSMENT

Trend for soil is down. Percent cover of bare ground rose from 8% in 1996 to 34% in 2001. Litter cover also declined substantially. This trend is due to the past several dry years (‘00 and ‘01). However, there is little erosion occurring. The erosion condition class was determined to be slight. Trend for the key browse species, antelope bitterbrush, is down slightly due to heavier use, increased poor vigor, increased decadence, and a decline in recruitment. Thirty-three percent of the decadent plants (80 plants/acre) were classified as dying and currently there are no young or seedlings to replace these. Except for the decadent, dying individuals in the population, all of the other plants sampled displayed normal vigor. Even with the heavy use, average annual leader growth of bitterbrush was 4.5 inches. Another positive aspect is the decline in the densities of broom snakeweed and woods rose, both increasers. Trend for the herbaceous understory is stable but composition is still poor. The grass composition is still dominated by Japanese brome which provides 71% of the grass cover and 44% of the total herbaceous cover. Bluebunch wheatgrass and Kentucky bluegrass are the only common perennial grasses. They combine to produce 26% of the grass cover. Forbs are abundant and diverse. The most abundant perennial species include arrowleaf balsam root, prickly lettuce, Lewis flax, and yellow salsify. Several undesirable species are also present including Pacific aster, thistle, curlycup gum weed, and dyer’s woad.

TREND ASSESSMENT
soil - down (1)
browse - down slightly (2)
herbaceous understory - stable but composition is poor (3)

HERBACEOUS TRENDS --
Herd unit 02 , Study no: 4

Type	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'84	'90	'96	'01	'84	'90	'96	'01	'96	'01
G	Agropyron spicatum	a7	b98	b89	b80	3	32	30	28	6.23	4.86
G	Bromus brizaeformis (a)	-	-	a84	b105	-	-	36	48	.84	.47
G	Bromus japonicus (a)	-	-	b351	a341	-	-	95	97	22.86	16.85
G	Bromus tectorum (a)	-	-	b74	a9	-	-	25	5	3.95	.05
G	Festuca ovina	-	1	-	-	-	1	-	-	-	-
G	Koeleria cristata	-	-	-	1	-	-	-	1	-	.03
G	Poa fendleriana	-	1	5	-	-	1	3	-	.01	-
G	Poa pratensis	d310	c178	a25	b85	98	66	11	37	.28	1.36
G	Poa secunda	a-	a-	a-	b12	-	-	-	5	-	.06
Total for Annual Grasses		0	0	509	455	0	0	156	150	27.66	17.37
Total for Perennial Grasses		317	278	119	178	101	100	44	71	6.52	6.33
Total for Grasses		317	278	628	633	101	100	200	221	34.18	23.70

Type	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'84	'90	'96	'01	'84	'90	'96	'01	'96	'01
F	Achillea millefolium	15	13	11	22	9	6	6	10	.28	.17
F	Agoseris glauca	-	-	-	4	-	-	-	2	-	.01
F	Alyssum alyssoides (a)	-	-	$_{a}$46	$_{b}$94	-	-	17	38	.16	.24
F	Artemisia ludoviciana	-	-	1	1	-	-	1	1	.00	.03
F	Aster chilensis	$_{a}$4	$_{b}$40	$_{ab}$22	$_{b}$32	2	15	10	12	.36	1.13
F	Astragalus convallarius	$_{a}$-	$_{b}$21	$_{ab}$7	$_{a}$4	-	9	3	2	.04	.18
F	Astragalus spp.	-	5	-	-	-	3	-	-	-	-
F	Balsamorhiza sagittata	$_{bc}$126	$_{c}$132	$_{b}$95	$_{a}$61	58	65	47	33	8.32	3.51
F	Camelina microcarpa (a)	-	-	$_{a}$-	$_{b}$30	-	-	-	15	-	.08
F	Calochortus nuttallii	-	5	-	-	-	2	-	-	-	-
F	Cirsium undulatum	$_{c}$78	$_{ab}$37	$_{b}$33	$_{a}$8	37	17	17	4	1.40	.31
F	Comandra pallida	$_{b}$21	$_{c}$49	$_{b}$14	$_{a}$-	9	25	8	-	.04	-
F	Collinsia parviflora (a)	-	-	-	3	-	-	-	1	-	.00
F	Crepis acuminata	-	1	7	-	-	1	4	-	.12	-
F	Draba spp. (a)	-	-	-	2	-	-	-	1	-	.00
F	Epilobium brachycarpum (a)	-	-	10	9	-	-	5	5	.05	.02
F	Eriogonum cernuum (a)	-	-	1	-	-	-	1	-	.03	-
F	Galium aparine (a)	-	-	$_{b}$16	$_{a}$2	-	-	6	1	.03	.00
F	Gilia spp. (a)	-	-	-	3	-	-	-	1	-	.00
F	Grindelia squarrosa	$_{a}$11	$_{ab}$12	$_{b}$32	$_{a}$9	5	8	13	5	2.51	.54
F	Hackelia patens	$_{a}$1	$_{b}$23	$_{a}$-	$_{a}$-	1	14	-	-	-	-
F	Helianthus annuus (a)	$_{a}$-	$_{a}$-	$_{b}$7	$_{b}$15	-	-	5	8	.07	.58
F	Helianthella uniflora	$_{a}$-	$_{b}$12	$_{a}$3	$_{a}$-	-	6	1	-	.38	-
F	Ipomopsis aggregata	-	2	-	-	-	2	-	-	-	-
F	Isatis tinctoria	$_{a}$-	$_{a}$6	$_{c}$96	$_{b}$51	-	2	45	25	2.20	2.02
F	Lappula occidentalis (a)	-	-	-	2	-	-	-	1	-	.00
F	Lactuca serriola	$_{a}$7	$_{a}$16	$_{a}$27	$_{b}$117	5	7	13	53	.38	2.79
F	Leucelene ericoides	-	-	-	1	-	-	-	1	-	.03
F	Linum lewisii	$_{a}$38	$_{b}$67	$_{ab}$62	$_{ab}$46	17	29	24	21	1.06	.98
F	Lithospermum ruderale	$_{c}$50	$_{b}$12	$_{ab}$5	$_{a}$-	24	6	4	-	.19	-
F	Medicago sativa	-	1	-	-	-	1	-	-	-	-
F	Microsteris gracilis (a)	-	-	-	1	-	-	-	1	-	.00
F	Oenothera caespitosa	-	4	-	-	-	1	-	-	-	-
F	Penstemon humilis	$_{a}$-	$_{b}$16	$_{b}$49	$_{a}$3	-	8	18	1	.82	.00
F	Petradoria pumila	-	3	-	-	-	1	-	-	-	-
F	Phlox longifolia	$_{a}$-	$_{c}$127	$_{b}$25	$_{b}$15	-	54	12	6	.16	.03

Type	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'84	'90	'96	'01	'84	'90	'96	'01	'96	'01
F	Senecio spp.	11	-	-	-	6	-	-	-	-	-
F	Taraxacum officinale	-	7	-	-	-	3	-	-	-	-
F	Tragopogon dubius	$_{c}$176	$_{b}$122	$_{a}$27	$_{a}$52	76	56	13	26	.24	1.05
F	Veronica biloba (a)	-	-	$_{a}$6	$_{b}$79	-	-	3	29	.01	.66
F	Viola spp.	$_{a}$-	$_{b}$22	$_{a}$1	$_{a}$-	-	15	1	-	.00	-
F	Zigadenus paniculatus	-	-	-	1	-	-	-	1	-	.03
Total for Annual Forbs		0	0	86	240	0	0	37	101	0.35	1.62
Total for Perennial Forbs		538	755	517	427	249	356	240	203	18.58	12.87
Total for Forbs		538	755	603	667	249	356	277	304	18.94	14.50

Values with different subscript letters are significantly different at alpha = 0.10 (annuals excluded)

BROWSE TRENDS --
Herd unit 02 , Study no: 4

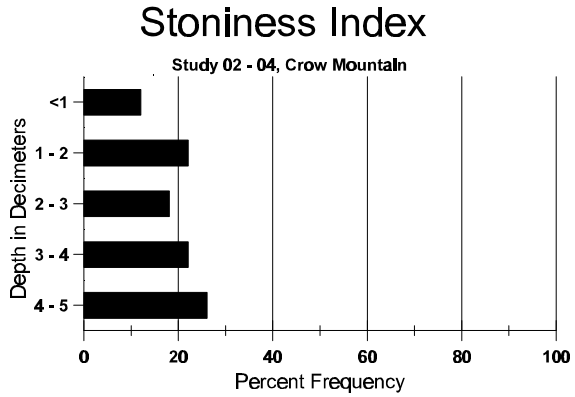
Type	Species	Strip Frequency		Average Cover %	
		'96	'01	'96	'01
B	Acer grandidentatum	0	1	-	-
B	Chrysothamnus viscidiflorus viscidiflorus	2	0	.38	-
B	Gutierrezia sarothrae	43	25	3.32	1.24
B	Purshia tridentata	32	26	5.66	4.51
B	Rosa woodsii	29	11	.72	.21
Total for Browse		106	63	10.10	5.98

BASIC COVER --
Herd unit 02 , Study no: 4

Cover Type	Nested Frequency		Average Cover %			
	'96	'01	'84	'90	'96	'01
Vegetation	389	377	3.00	15.00	56.76	48.80
Rock	61	69	3.50	3.50	.71	1.58
Pavement	100	127	2.25	3.50	.48	1.18
Litter	398	381	70.00	41.75	58.16	39.72
Cryptogams	2	-	0	0	.00	0
Bare Ground	216	300	21.25	36.25	8.03	33.92

SOIL ANALYSIS DATA --
Herd Unit 02, Study no: 04, Crow Mountain

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
20.0	64.2 (18.1)	7.8	31.7	29.0	39.3	4.5	7.0	230.4	.7



PELLET GROUP FREQUENCY --
Herd unit 02 , Study no: 4

Type	Quadrat Frequency '96	Quadrat Frequency '01	Pellet Transect: Pellet Groups per Acre ⁄01	Pellet Transect: Days Use per Acre (ha) ⁄01
Rabbit	1	-	-	-
Elk	1	-	-	-
Deer	-	1	26	2 (5)
Cattle	-	1	9	1 (3)

BROWSE CHARACTERISTICS --
Herd unit 02 , Study no: 4

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Acer grandidentatum																		
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20	-	-	1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor
'84	00%	00%	00%
'90	00%	00%	00%
'96	00%	00%	00%
'01	00%	00%	00%

%Change

Total Plants/Acre (excluding Dead & Seedlings)				
'84	0	Dec:		-
'90	0			-
'96	0			-
'01	20			-

Amelanchier alnifolia																		
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	98	56	0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	70	61	0
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor
'84	00%	00%	00%
'90	00%	00%	00%
'96	00%	00%	00%
'01	00%	00%	00%

%Change

Total Plants/Acre (excluding Dead & Seedlings)			
'84	0	Dec:	-
'90	0		-
'96	0		-
'01	0		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia tridentata vaseyana																		
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	00%	00%	00%	
'90	00%	00%	00%	
'96	00%	00%	00%	
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'84	0	Dec:		-
'90	0			-
'96	0			-
'01	0			-

Chrysothamnus viscidiflorus viscidiflorus																			
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	2	-	-	-	-	-	-	-	-	2	-	-	-	40	19	25	2
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	00%	00%	00%	
'90	00%	00%	00%	
'96	00%	00%	00%	
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			
'84	0	Dec:	-
'90	0		-
'96	40		-
'01	0		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Gutierrezia sarothrae																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	66	16	18	1
	96	118	-	-	1	-	-	-	-	-	119	-	-	-	2380	12	18	119
	01	72	-	-	-	-	-	-	-	-	70	2	-	-	1440	10	15	72
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	7	-	-	-	-	-	-	-	-	1	-	1	5	140			7
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	140			7

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	00%	00%	00%	
'90	00%	00%	00%	+97%
'96	00%	00%	00%	-35%
'01	00%	00%	08%	

Total Plants/Acre (excluding Dead & Seedlings)				
'84	0	Dec:		0%
'90	66			0%
'96	2440			0%
'01	1580			9%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Purshia tridentata																		
Y	84	3	2	-	-	-	-	-	-	-	5	-	-	-	333			5
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	6	-	-	-	-	-	-	-	-	6	-	-	-	120			6
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	84	-	-	18	-	-	-	-	-	-	18	-	-	-	1200	21	41	18
	90	16	2	-	6	-	-	-	-	-	24	-	-	-	1600	22	34	24
	96	12	19	-	-	1	-	-	-	-	30	2	-	-	640	25	49	32
	01	1	12	5	-	-	1	-	-	-	19	-	-	-	380	22	40	19
D	84	-	-	6	-	-	-	-	-	-	6	-	-	-	400			6
	90	4	6	-	-	-	-	-	-	-	9	-	-	1	666			10
	96	1	4	-	-	-	-	-	-	-	2	-	1	2	100			5
	01	2	7	2	-	-	1	-	-	-	8	-	-	4	240			12
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	140			7
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	180			9

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	07%	83%	00%	+15%
'90	24%	00%	03%	-62%
'96	56%	00%	07%	-28%
'01	61%	29%	13%	

Total Plants/Acre (excluding Dead & Seedlings)				
'84	1933	Dec:		21%
'90	2266			29%
'96	860			12%
'01	620			39%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Ribes aureum																		
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	55	56	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor
'84	00%	00%	00%
'90	00%	00%	00%
'96	00%	00%	00%
'01	00%	00%	00%

%Change

Total Plants/Acre (excluding Dead & Seedlings)				
	'84	0	Dec:	-
	'90	0		-
	'96	0		-
	'01	0		-

Rosa woodsii																		
S	84	4	-	-	-	-	-	-	-	-	4	-	-	-	266			4
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	84	5	-	-	-	-	-	-	-	-	5	-	-	-	333			5
	90	6	-	-	11	-	-	-	-	-	17	-	-	-	1133			17
	96	31	-	-	-	-	-	-	-	-	28	-	3	-	620			31
	01	7	-	-	-	-	-	-	-	-	7	-	-	-	140			7
M	84	18	-	-	-	-	-	-	-	-	18	-	-	-	1200	15	5	18
	90	3	-	-	1	-	-	-	-	-	4	-	-	-	266	12	8	4
	96	36	-	-	-	-	-	-	-	-	33	-	3	-	720	43	45	36
	01	8	-	-	-	-	-	-	-	-	7	-	-	1	160	12	10	8
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	5	-	-	-	-	-	-	-	-	2	-	3	-	100			5
	01	6	-	-	-	-	-	-	-	-	-	-	-	6	120			6
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	40			2
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	140			7

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	00%	00%	00%	- 9%
'90	00%	00%	00%	+ 3%
'96	00%	00%	13%	-71%
'01	00%	00%	33%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'84	1533	Dec:	0%
	'90	1399		0%
	'96	1440		7%
	'01	420		29%